

Hazardous Waste Management Commission Report

July through September 2013

Quarterly Report



Missouri
Department of
Natural Resources



Groundwater monitoring well installations
at the Fall Out Shelter in Springfield.

Hazardous Waste Management Commissioners

Michael Foresman, Chair

Deron Sugg, Vice Chair

Andrew Bracker

James "Jamie" Frakes

Elizabeth Aull

Charles "Eddie" Adams

"The goal of the Hazardous Waste Program is to protect human health and the environment from threats posed by hazardous waste."

For more information

Missouri Department of Natural Resources

Hazardous Waste Program

P.O. Box 176, Jefferson City, MO 65102-0176

www.dnr.mo.gov/env/hwp/index.html

Phone: 573-751-3176

Fax: 573-751-7869

Past issues of the Hazardous Waste Management Commission Report are available online at www.dnr.mo.gov/env/hwp/quarerlyreport.htm.



**Missouri Department of Natural Resources
Hazardous Waste Program**

Program Update Letter from the Director

This edition of the Commission report covers the program's activities for the summer months from July to September. This is typically a busy time for many of our staff who are in the field, sampling and providing oversight at cleanup efforts across the state. This quarter also marks the beginning of the 2014 State fiscal year. Following passage of our fee bills during the last legislative session, with House Bills 28 and 650, our budget staff can take a small breath before gearing up to start all over on State Fiscal Year 2015 budget preparations.

One of the activities occurring during this time frame each year is the annual Missouri Waste Control Coalition Conference. Staff from several sections participated again this year at the conference, which was held at the Lake of the Ozarks in early July. This conference brings together citizens, government, business and industry to discuss issues related to waste management and remediation issues. Several key program staff are involved in planning the conference each year. This provides an excellent opportunity for our staff and the regulated entities they work with to share information about current issues or new technologies. This year's conference was well attended and provided a lot of opportunity to have a productive dialog about many timely issues.

The program spent a lot of time this quarter continuing efforts to implement the requirements of HB1251. Staff worked diligently toward identifying (by Dec. 31, 2013) any rules in chapters 3, 4, 5 and 7 of the Hazardous Waste regulations more stringent or requiring things sooner than corresponding federal regulations identified in the statute. The program worked closely with the members of the Hazardous Waste Forum on this effort to ensure interested stakeholders were aware of the work being done by the program and given the opportunity to provide input in the process. The program used a color coded version of the rules to identify our findings in regard to certain rule provisions as we made decisions about which rules were more stringent, or needed further analysis before a decision could be made. This process was helpful to the stakeholders involved and helped make the department's decision making more transparent.

This quarter, we also continued to see a changing of the guard in the program, as we lost a few more valued employees to retirement. The Permits Section during this period lost two staff members to retirement (who had a combined state service of almost 70 years). Among several other key staff who retired this past year, their institutional knowledge will be sorely missed. But we will continue to fill these vacancies with the most talented people that we can find to ensure the important work of the program continues to be performed.

As always, we appreciate your interest in the Hazardous Waste Program's activities, and hope you enjoy reading about our accomplishments from this past summer.

Sincerely,



David J. Lamb

Table of Contents

Remediation.....	4
Brownfields/Voluntary Cleanup Certificates of Completion.....	4
Table – Sites in Brownfield/Voluntary Cleanup Program	10
Table – Drycleaning Environmental Response Trust Fund	11
Table – Reimbursement Claims	12
 Budget and Planning	13
Fiscal 2014 Budget	13-16
 Permits	17
Hazardous Waste Recycling in Missouri.....	17-21
 Enforcement.....	22
Compliance and Enforcement Report	22
Underground Storage Tank Compliance and Technology Unit.....	22
Tank Enforcement Efforts.....	22
Tank Inspection Efforts.....	23
Special Facilities Unit	23
Hazardous Waste Enforcement Unit	23
Enforcement Unit	24
Regional Office and Central Office Workshop.....	24
Table - Underground Storage Tank Facilities with Unknown Financial Responsibility Status Report.....	25
 Tanks.....	26
Missouri Awarded Special Project Monies from EPA	26
2013 National Tanks Conference	27
Route 66 Community Assessment and Cleanup Plan	28
Table – Tanks Regulations, Closures and Cleanups Attachment	29

Brownfields/Voluntary Cleanup Program Certificates of Completions

Brownfields are real property, the expansion, redevelopment or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant or contaminant. Through this program, private parties agree to clean up a contaminated site and are offered some protection from future state and federal enforcement action at the site in the form of a “no further action” (NFA) letter or “certificate of completion” (COC) from the State.

The Brownfields/Voluntary Cleanup Program (BVCP) issued seven certificates of completion for various sites from July through September 2013. This brings the total number of certificates of completions to 702.

West Meadows - Site 1 - Springfield

The West Meadows - Site 1 site is located at 725 W. Olive in Springfield. This site is a 1.26-acre portion of the larger West Meadows Site, a 14-acre former rail yard and maintenance facility dating to the 1800s. Jordan Creek runs along all of the eight parcels of the site.

The City of Springfield enrolled the property to address contamination remaining from historic operations at the site, in preparation for the construction of a natural area with trails and flood control features to be called Jordan Valley West Meadows.

Site investigations revealed large quantities of coal cinders used as fill at the site, which were contaminated with low levels of heavy metals (lead, arsenic and cadmium) and PAHs at levels exceeding risk based target levels for surface soil. Groundwater in shallow bedrock beneath the site was contaminated with low levels of benzene and naphthalene exceeding domestic use target levels. Risk assessment was performed using Missouri Risk-Based Corrective Action 2006 (MRBCA 2006).

Fill material was excavated to the depth of native soil in accordance with a department-approved remedial action plan. Approximately 8,700 tons of low-level contaminated fill was consolidated and capped on other portions of the West Meadows site. A total of 117 tons of higher-level contaminated fill was disposed of as special waste at a permitted landfill.

Groundwater contamination was determined to be from an off-site source. Because groundwater use is restricted no remediation was necessary. The site meets target levels appropriate for non-residential use. An environmental covenant was filed in the property chain of title by the city to ensure land use restrictions remain in place. The department determined this site is safe for its intended use and is proud to be a part of the cleanup and revitalization of the West Meadows and several other sites in Jordan Valley Park.

About Jordan Valley Park

Jordan Valley Park is located in the heart of downtown Springfield, in the historical industrial core of the city. The park meanders two miles along Jordan Creek from National Ave. to Kansas Expressway. The transformation of the area will include up to 200 acres of previously under-utilized land and will take approximately 20 years to complete.

Missouri Department of Natural Resources - Hazardous Waste Program

The overall plan for this park originated in the “Vision 20/20” planning and visioning process that occurred in the 1990s. Community involvement has remained a priority ever since. Some goals for the park are to revitalize the city center, create open space as well as structured amenities, develop trails and streetscapes to improve pedestrian and bike access, improve car traffic patterns, increase flood control and enhance the wildlife habitat in and along Jordan Creek itself. More information about Jordan Valley Park is available at <http://www.springfieldmo.gov/jvp/index.html>.

The West Meadows

The West Meadows was planned as a natural area complementing more developed parts of the park. Much of the site is in the flood plain of Jordan Creek and was historically filled by railroads to create flat land. This was repeated throughout Jordan Valley, resulting in a tightly channelized creek that floods during heavy rain events, damaging property and hampering redevelopment. Removal of large volumes of the fill at West Meadows created a perfect opportunity for collaboration between remediation and flood control.

West Meadows Site 1 is the first of the eight West Meadows parcels to be completed. It forms the eastern gateway to the site. Removal of surface fill lowered elevation of a portion of the site along the creek bank, creating a floodway for the creek to expand into during high water. The site was planted in native grasses and wildflowers, following a comprehensive landscaping plan developed for the site.

Groundwater contamination beneath the site is believed to be related to one or more former manufactured gas plant sites located just to the east of the site along Main St., and other sources such as former gas stations in the area. The city and other stakeholders are moving ahead with investigation of potential contaminant sources, and BVCP will continue to be involved in that process.

Beaux Art and Pythian Hall Complex – St. Louis

The Beaux Art and Pythian Hall Complex site is located at 711 N. Grand Blvd. in St. Louis. This BVCP project site consists of two interconnected buildings, the Beaux Arts Building and Pythian Hall, constructed circa 1928.

The Beaux Arts building is a two-story office space used as the former headquarters for the Carter Carburetor Corporation (no longer in business). This building was also used for other small businesses including military recruiting, insurance, medical and architectural.

Pythian Hall is a six-story building with a five-level parking garage and an auditorium with a mezzanine occupying the sixth floor. Historically, this building was used for entertainment space, a meeting hall and parking.

Initial investigation of the site began in November 2009 with a phase I environmental site assessment and an asbestos and environmental inspection. The investigation identified the presence of asbestos containing materials (ACM), lead-based paint (LBP), one 15,000-gallon aboveground storage tank (AST) used for heating oil, four 1,000-gallon underground storage tanks (UST) and miscellaneous hazardous materials located on-site. The project site was accepted into BVCP on Dec. 2, 2009 for abatement of LBP, ACM, one AST, four USTs and miscellaneous hazardous materials. A remediation action plan (RAP) was approved by BVCP in January 2010 and additional addendums were approved in January 2011. The RAP proposed the abatement of hazardous materials using target levels published in the *Missouri Risk-Based Corrective Action* (MRBCA 2006) *Technical Guidance*. The remedial methods outlined in the approved RAP and subsequent addendums included adding a topping layer of concrete to all floors, removal or encapsulation of LBP on walls and ceilings, removal or encapsulation of ACM and closure of the AST and the four USTs.

Because the AST and USTs were encased in concrete, the tanks were closed in place by removing any residual contents and backfilled with concrete during March 2011. Residual contents of the tanks were tested and removed for proper disposal.

A total of 5,100 linear feet of thermal system insulation, 12, 850 square feet of other ACM and 3,100 pounds of lead waste was properly removed and disposed. Because it is not necessary or practical to safely remove all ACM or LBP, some materials were left in place. An operation and maintenance plan was filed in the chain of title for the property to ensure the ongoing care of these materials.

The department determined this site is safe for its intended use. The project site currently operates as the Grand Center Arts Academy that serves the St. Louis community as a charter school for grades 6 through 10.

Reed Rubber Company (former) - St. Louis

The Reed Rubber Company (former) site is located at 1615 N. 25th Street in St. Louis. This 4.2-acre site encompasses one city block and is located in a light commercial and residential area. It consists of one building and two parking lots. Originally used as a ballpark in the 1800's, it became primarily residential with some light commercial from the 1930's through 1986. In 1986, all but two residential structures were demolished. The existing building was constructed in 1992, and used as an auto parts distributor until sometime between 2001 and 2006, when Reed Rubber Company purchased the property. Reed Rubber Company sold the property to Faultless Linen in September 2011.

Site investigations revealed lead and polynuclear aromatic hydrocarbons (PAHs) exceed the surficial soil tier 1, soil type 1 risk based target levels, for non-residential land use. Subsurface soil lead also exceeds the non-residential risk based target levels. However, a May 2012 tier 1 risk assessment states, with the exception of a few landscaped areas, the majority of the site is capped, either with parking lots or the building footprint, thus eliminating the exposure pathways. A soil management plan has been created to address the soil in the landscaped areas. The department determined this site is safe for its intended use. Faultless Linen has purchased the property and made improvements to the site, including installation of utilities and building modifications. They intend to use the facility for laundering operations.

Arlington Grove – St. Louis

Arlington Grove is located at Dr. Martin Luther King Drive and Clara Ave. in St. Louis. The site consists of two tracts in St. Louis City Block 4530. There are two other bounding streets, Cote Brillante Ave. and Burd Ave. The portion on Clara Ave. is zoned residential two-family and the lots on Dr. Martin Luther King Drive are zoned for commercial use.

Many of these lots were vacant, or contained the remnants of demolished structures. There were three buried heating oil tanks removed. This site also contained a former dry cleaner (Bright and Free Laundry & Dry Cleaner) which is managed through the Drycleaning Environmental Response Trust Fund (DERT) for chlorinated solvent issues.

Although a gas station operated at the site before 1950, no gasoline tanks were discovered in the investigation. The suspected former location showed signs of removal prior to the construction of the dry cleaning site building. Several small non-regulated USTs used for storing heating oil used on the premises of residences and small businesses were removed in the course of the cleanup.

All locations were tested for residual oil contaminants and the metal components were recycled as scrap metal. Extensive investigation related to the Bright & Free Laundry and Dry Cleaners DERT Fund site on the southeast corner of the Arlington Grove site found only traces of dry cleaning chlorinated hydrocarbons well below MRBCA 2006 Risk-Based Target Levels.

The grading and soil preparation of the two property areas, Lot 1 and Lot 2, discovered two areas of elevated lead impacted soils believed to be related to early 20th Century building demolition.

All other metals tests did not exceed naturally occurring background concentrations of arsenic at 12.838 mg/kg and lead at 64.021 mg/kg for the City of St. Louis from U.S. Geological Survey data.

Restricted use areas were created in planned paved parking areas needed for the development. A survey of the parking lot restriction areas was conducted and an environmental covenant for restricted residential use for those areas is to be filed in the properties' chain-of-title along with a plan for soil management in case of disturbance.

The footprints of previously demolished buildings were cleared of debris and the floor of each was tested. Five buildings were demolished after inspections due to their containing LBP and ACM. Proper demolition and disposal were documented in the final report. The Arlington Grove and Bright and Free Laundry & Dry Cleaners DERT Fund site COC letters are being issued together. The former Arlington Grove School and its grounds were excluded from the cleanup and are not covered by the BVCP COC. The department determined this site is safe for its intended use.

This project was developed and implemented by the City of St. Louis Housing Authority along with Arlington Grove Limited Partnership, by MBS Arlington Grove GP Inc. This site will include new residential units, redesigned space for apartments (redeveloped from the historic Arlington Grove School), off street parking and first-floor space for businesses.

Quiktrip #183 – Lee's Summit

The Quik Trip #183 site is located at 1001 Southwest Blue Parkway in Lee's Summit. The site was occupied by the Missouri Public Service maintenance facility and warehouse until the late 1970s. The facility was used for machine repairs, vehicle maintenance, electrical transformer storage and light fabrication. During transfer of the property to Quiktrip Corporation, solvent and PCB contamination was discovered in soil and groundwater beneath the site, particularly tetrachloroethylene (PCE). The Quiktrip #183 site began operations as a convenience store/gas station in 1996. Four USTs are currently in place at the site.

In 1995 and 1996, QuikTrip Corporation performed a phase I and phase II environmental assessment, and a corrective action plan (CAP) for groundwater and soil vapor recovery. An additional investigation included a site characterization and cleanup levels for Missouri (CALM) tier 1 risk assessment in 2000 and 2001. The department requested additional monitoring well installations at the site, which were completed in 2002. A dual-phase remediation system operated intermittently at the site from 1997-2004. A MRBCA report was completed in April 2010. In May 2010 the BVCP requested revisions and additional information regarding the tier 1 MRBCA report. A tier 1 risk assessment report addendum was submitted in April 2011. The report recommended additional monitoring to confirm the extent of the groundwater plume and demonstrate plume stability.

Missouri Department of Natural Resources - Hazardous Waste Program

In February 2012, results recieved from the August and November 2011 groundwater samples showed only PCE and Trichloroethylene (TCE) were above the default target levels, yet remained below the tier 1 risk based target levels-non-residential land use. Based on the analytical data and apparent plume stability, the consultant recommended the department issue a NFA letter for the site. The department concurs the site may close with a non-residential land use restriction and has determined this site is safe for its intended use.

Palestine Commons – Kansas City

The Palestine Commons site is located at 2615 E. 34th, 3406, 3410, 3412, 3418, 3420, 3424, 3426, 3434 Montgall Ave. in Kansas City. This 2.2 acre site encompasses several lots. Historical use was primarily residential; however past uses of note include dry cleaning operations, plating and auto repair and painting service. A heating oil UST was noted on one of the properties. Phase II site investigations detected total petroleum hydrocarbons - gasoline range organics, lead, cadmium, bromomethane and ACMs in soil.

Lead contaminated soil was excavated to residential levels. A 2,000-gallon heating oil UST was removed and soil sampling confirmed the tank had not experienced a release. ACM was removed from on-site buildings and disposed. Though there were early indications of groundwater contamination above the department's default target levels, four quarters of groundwater monitoring yielded final concentrations, for all contaminants, below these levels. The department determined this site is safe for its intended use.

Palestine Commons is an enhanced services senior living facility, designed for Seniors age 55 and older. This 69-unit, \$10.7 million project received a \$1 million federal earmark from the Department of Housing and Urban Development, \$8.6 million in tax credit assistance and tax credit replacement programs, and \$750,000 in Missouri HOME financing. It joins two other Palestine Estates senior housing projects nearby, as well as the Palestine Senior Citizens Activity Center. These projects were completed by the Palestine Village Economic Development Corporation, a nonprofit community development organization.

Sites in Brownfields/Voluntary Cleanup Program

Month	Active	Completed	Total
July	246	698	944
August	242	701	943
September	244	702	946

New Sites Received

July

- Southeast School Building (UCM), Warrensburg
- Sherman Avenue House, Springfield

August

- Wade Funeral Home, St. Louis

September

- Missouri Lofts Building, St. Louis
- Canadian Pacific - Excelsior Springs Yard, Excelsior Springs
- Canadian Pacific - Liberty Yard, Liberty

Sites Closed

July

- Beaux Art/Pythian Hall Complex, St. Louis
- Arlington Grove, St. Louis

August

- QuikTrip #183, Lee's Summit
- Palestine Commons, Kansas City
- Reed Rubber Company (former), St. Louis

September

- West Meadows-Site 1, Springfield

Missouri Department of Natural Resources - Hazardous Waste Program

Drycleaning Environmental Response Trust Fund

The department's Drycleaning Environmental Response Trust (DERT) Fund provides funding for the investigation, assessment and cleanup of releases of chlorinated solvents from dry cleaning facilities. The two main sources of revenue for the fund are the dry cleaning facility annual registration surcharge and the quarterly solvent surcharge.

Registrations

The registration surcharges are due by April 1 of each calendar year for solvent used during the previous calendar year. The solvent surcharges are due 30 days after each quarterly reporting period.

Calendar Year 2012	Active Dry Cleaning Facilities	Facilities Paid	Facilities in Compliance
January - March 2013	188	71	37.77%
April - June 2013	188	159	84.57%
July - Sept 2013	188	167	88.83%

Calendar Year 2013	Active Solvent Suppliers	Suppliers Paid	Suppliers in Compliance
January - March 2013	11	10	90.91%
April - June 2013	12	11	91.7%
July - Sept 2013	12	1	8.33%

Cleanup Oversight

Calendar Year 2013	Active Sites	Completed Sites	Total
January - March 2013	25	11	36
April - June 2013	23	13	36
July - Sept 2013	22	14	36

New Sites Received

July - None

August - None

September - None

Sites Closed

July - Bright and Free Laundry & Dry Cleaners, St. Louis

August - None

September - None

Reimbursement Claims

The applicant may submit a reimbursement claim after all work approved in the work plan is complete and the fund project manager has reviewed and approved the final completion report for that work. The fund applicant is liable for the first \$25,000 of corrective action costs incurred.

Month	Received	Under Review	Paid/Processed
July	2	1	1
August	0	2	2
September	0	8	5

Month	Received	Under Review	Paid/Processed
July	\$50,362.93	\$1,040.00	\$1,040.00
August	\$0.00	\$20,972.80	\$11,768.27
September	\$0.00	\$142,456.45	\$73,064.83

Reimbursement Claims Processed:

Site Name	Location	Paid
Bright and Free Laundry & Dry Cleaners	St. Louis	\$10,538.19
Charter Dry Cleaning	Ellisville	\$3,065.00
Fenton Plaza 48	Fenton	\$1,040.00
First Capitol Cleaners	St. Charles	\$3,297.50
Grandview Plaza	Grandview	\$8,470.77
Park Lane Cleaners	Chillicothe	\$6,253.20
Regal Cleaners	University City	\$33,050.44
Tri-States Service Company-Boonville Avenue	Springfield	\$20,158.00

Total reimbursements as of Sept. 30, 2013: \$2,297,157.60

DERT Fund Balance as of Sept. 30, 2013: \$816,257.93

Missouri Department of Natural Resources - Hazardous Waste Program

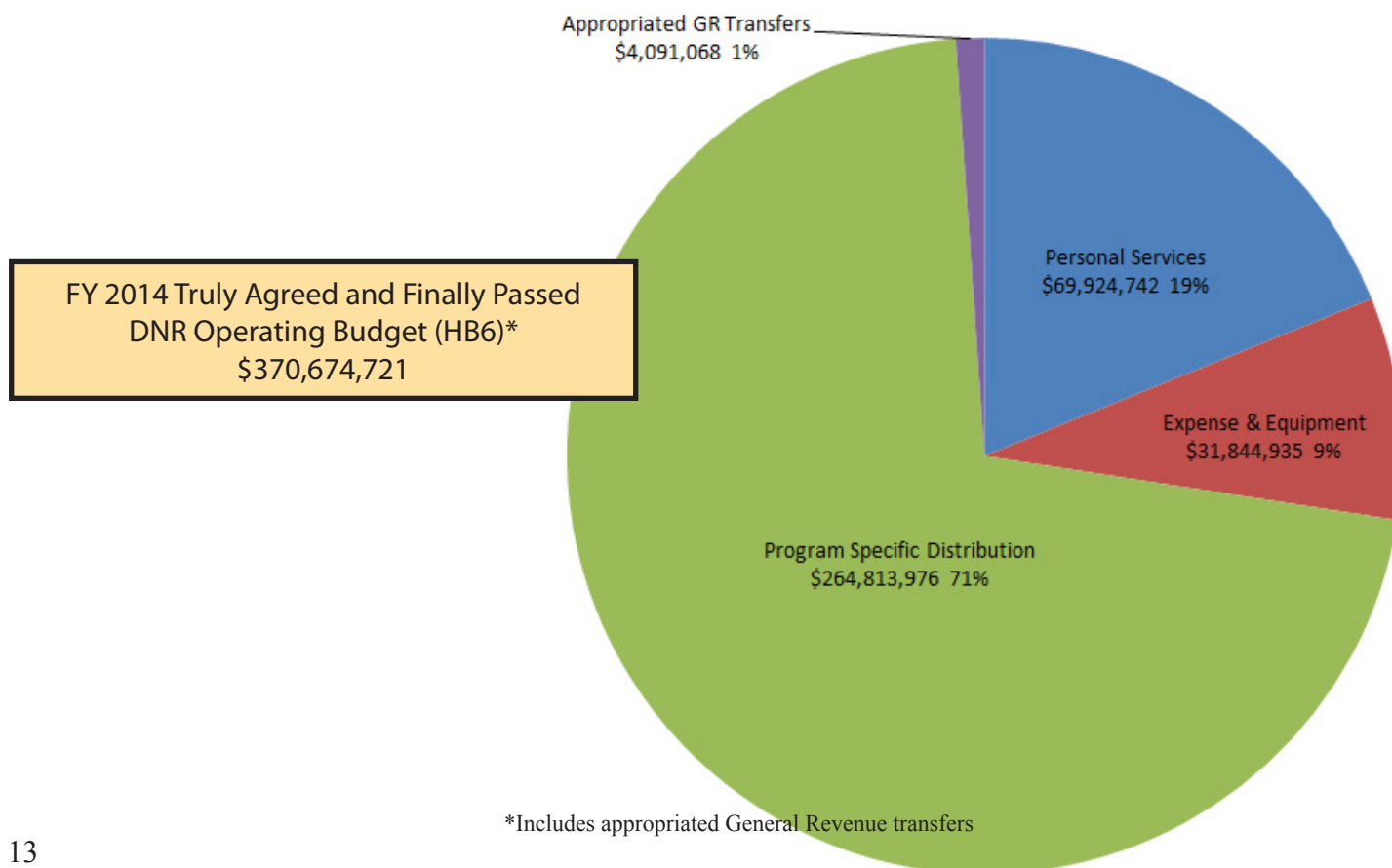
Fiscal Year 2014 Budget

The Budget and Planning Section is responsible for financial management of the Hazardous Waste Program. It is this section's responsibility to coordinate program's budget requests each fiscal year. The state is currently operating in Fiscal Year 2014, which began on July 1, 2013 and runs through June 30, 2014.

The process to establish the Fiscal Year 2014 budget began in July 2012 when the State Budget Director issued budget preparation instructions. The Budget Program within the Division of Administrative Support coordinates the department's overall operating, leasing and capital improvements budgets. The department's operating budget is available online at <http://archive.ia.mo.gov/bp/budreqs2014/DNR/DNR.pdf>.

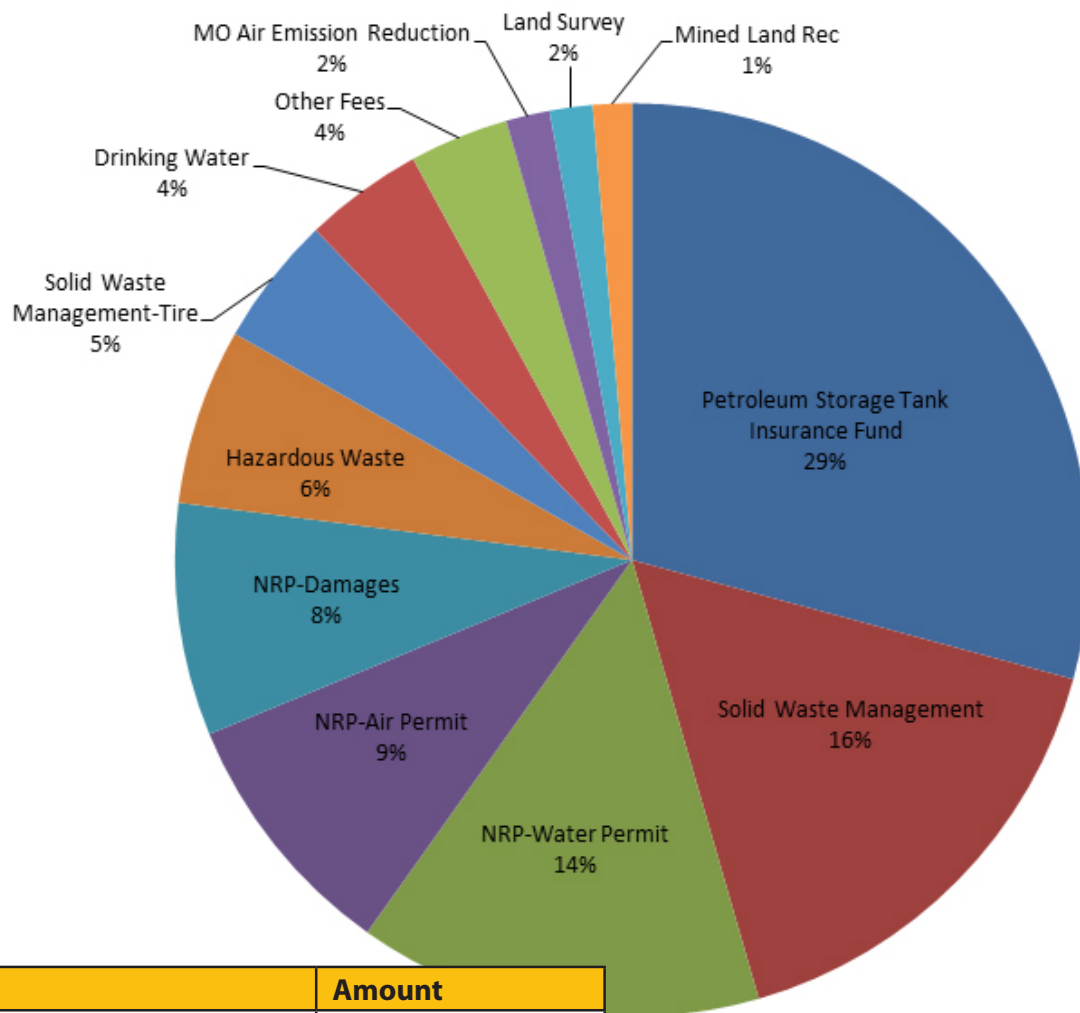
Each state agency is required to submit its completed budget request to the State Budget Director annually by Oct. 1. The governor may make changes to these department budget requests and releases the governor's recommended budget in conjunction with the governor's State of the State address in January.

The department's Fiscal Year 2014 operating budget is in House Bill 6, which had to be truly agreed to and finally passed by May 10. The governor signed the appropriations bill on June 28. The department's Fiscal Year 2015 budget request was submitted Oct. 1, 2013.



Missouri Department of Natural Resources - Hazardous Waste Program

FY 2014 Truly Agreed and Finally Passed DNR Budget - Environmental Fee Fund Appropriations \$78,942,682

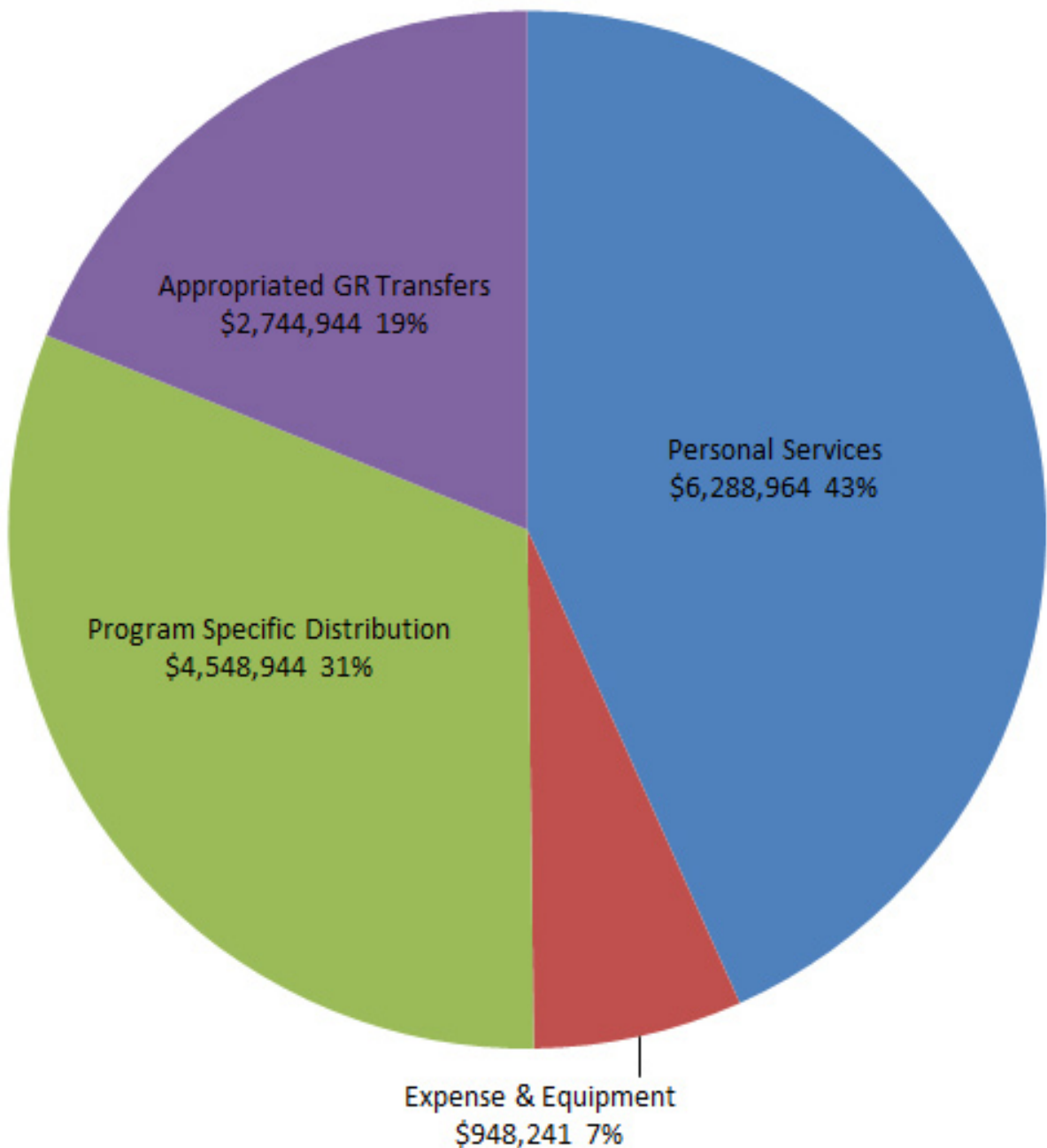


Division	Amount
Petroleum Storage Tank Insurance Fund	\$23,056,569.00
Solid Waste Management	\$12,881,583.00
NRP-Water Permit	\$11,294,207.00
NRP-Air Permit	\$7,062,408.00
NRP-Damages	\$6,495,449.00
Hazardous Waste	\$4,927,072.00
Solid Waste Management-Tire	\$3,625,595.00
Drinking Water	\$3,326,036.00
Other Fees	\$2,769,066.00
MO Air Emission Reduction	\$1,220,410.00
Land Survey	\$1,196,266.00
Mined Land Rec	\$1,088,021.00

*Includes appropriated General Revenue transfers

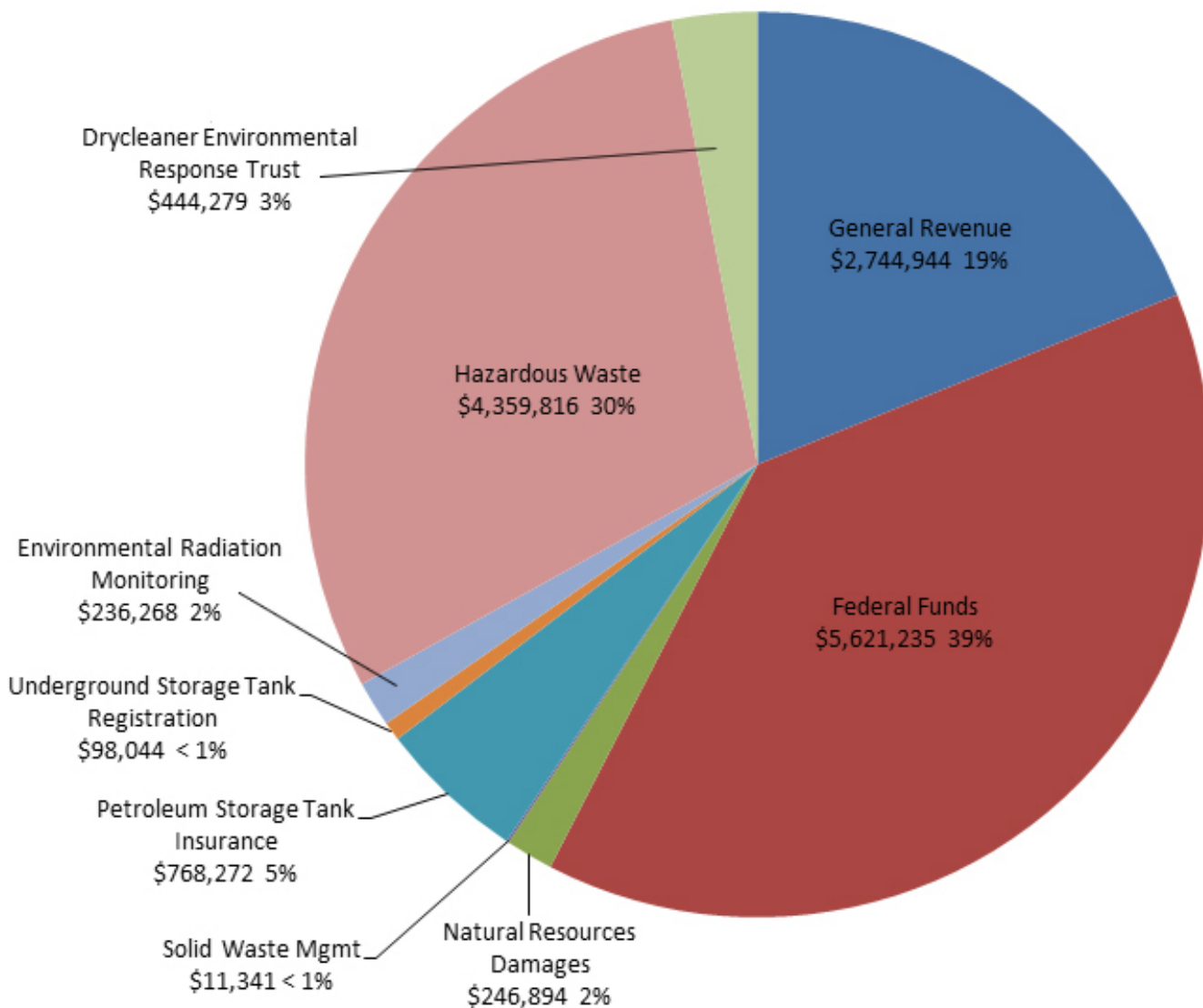
Missouri Department of Natural Resources - Hazardous Waste Program

FY 2014 DNR Hazardous Waste Program and Petroleum
Related Activities Truly Agreed and Finally Passed
Operating Budget (HB6)*
TOTAL: \$14,531,093



Missouri Department of Natural Resources - Hazardous Waste Program

FY 2014 Hazardous Waste Program and Petroleum Related Activities Truly Agreed and Finally Passed Operating Budget (HB6)* By Fund TOTAL: \$14,531,093



BUDGET AND PLANNING

*Includes appropriated General Revenue transfers

Missouri Department of Natural Resources - Hazardous Waste Program

Hazardous Waste Recycling in Missouri

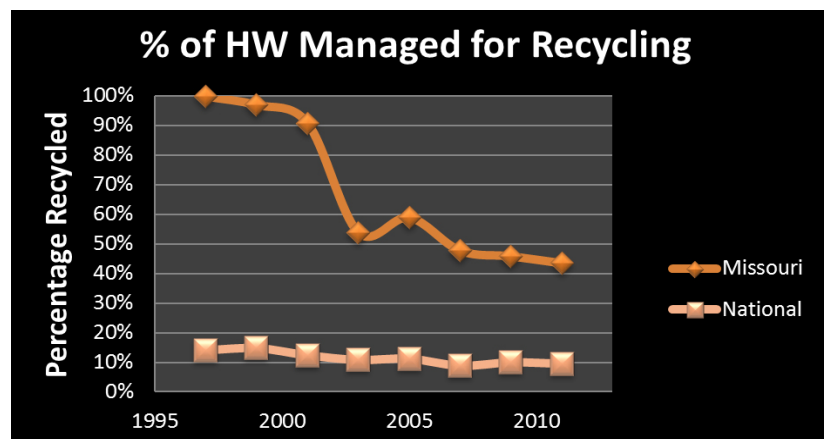
Most manufacturing, repairing and cleaning businesses, laboratories, retailers and hospitals produce some form of hazardous waste. Some are small businesses, such as dry cleaners, auto repair shops, gas stations and exterminators. Some are larger businesses, such as chemical manufacturers, universities, automobile factories and lumber-treating facilities. Hazardous waste facilities in Missouri managed 328,500 tons of hazardous waste in 2011.

Reducing, reusing and recycling hazardous waste can protect human health and the environment, conserve natural resources, provide economic benefits and reduce reliance on raw materials and energy. Recycling hazardous waste typically requires less energy and reduces the potential for air, surface water, groundwater and soil pollution associated with removing and processing new raw materials. The recycled material can be used as a substitute for new raw materials, which can reduce costs to business. Manufacturing products with recycled materials gives businesses an added benefit of the ever increasing popularity of a “green” image. To remain competitive, businesses are continuing to expand corporate stewardship and increase goodwill with stakeholders and consumers by enhancing their “green” image through hazardous waste recycling, material lifecycle analysis and sustainable material management practices.

How does Missouri stack up?

Hazardous waste can be recycled in numerous ways, such as energy recovery, solvent recovery, metals recovery, fuel blending, land treatment, land application and land farming. According to EPA’s *National Hazardous Waste Biennial Report*, 39 million tons of hazardous waste was managed in the United States in 2011. Only 9.5 percent of that waste, or 3.71 million tons, was recycled. The remaining 90.5 percent was disposed through activities such as deep well injection, aqueous organic and inorganic treatment, landfill or surface impoundment, incineration, stabilization and sludge treatment.

Of the 328,500 tons of hazardous waste managed in Missouri in 2011, approximately 43.5 percent, or 143,000 tons, was managed for recycling. This figure does not represent the actual amount of Missouri produced wastes that were recycled. In 2011, only 251,000 tons of hazardous waste were produced in Missouri making Missouri a net “importer” of hazardous waste. A lot of the hazardous wastes recycled in Missouri actually came from outside the state, while some of the hazardous waste produced in Missouri is shipped out-of-state for management or disposal. This is an important note, since the amount of hazardous waste recycled in Missouri actually approached 100 percent in some years.



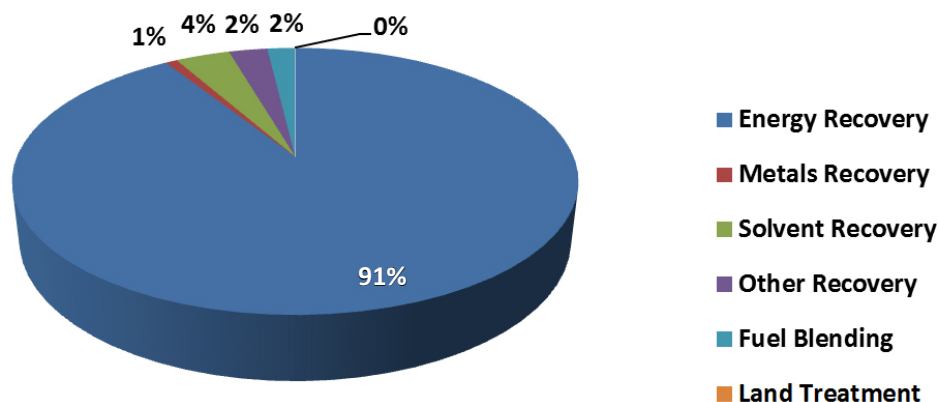
Missouri consistently stays above the national hazardous waste recycling average; however, there was a significant decrease in the amount of waste recycled over the past decade. Part of this drop can be attributed to the Holcim Cement plant in Clarksville. Holcim operated a wet cement kiln, which produced clinker, the main ingredient in Portland cement. The main fuel used to heat the kiln was coal and coke; however, Holcim also used a variety of liquid and solid hazardous waste-derived fuels to supplement their fuel needs. From 2005 to 2007, Holcim decreased their hazardous waste-derived fuel usage by 45 percent before stopping active cement production operations in 2009. The drop in Missouri hazardous waste recycling can also be attributed to more facilities getting into the incineration industry. Between 2001 and 2003, incineration jumped from 3.9 percent of total hazardous waste managed to 23.3 percent in Missouri. Incineration is not considered a recycling practice.

How Does Missouri Regulate Hazardous Waste Recycling?

With some exceptions, Missouri businesses wanting to perform hazardous waste recovery are required to get a resource recovery certificate. Hazardous waste resource recovery is reusing or reclaiming hazardous waste or transforming hazardous waste into a new product that is no longer a waste. Reclaiming a hazardous waste involves processing it to recover a usable product. For example, battery plates and other lead components from spent lead-acid batteries are smelted and refined into secondary lead, which is purchased by various manufacturers, re-melted and used in the production of new products.

Businesses wanting to recycle hazardous waste through certain types of treatment processes are required to get applicable hazardous waste permits. Examples of hazardous waste treatment include burning (for energy recovery) and fuel blending. These permits list what kinds of hazardous wastes a company can manage, how those hazardous wastes must be managed, and what sort of operational controls and monitoring are needed to ensure safe management. The Permit's Section issues the Missouri Hazardous Waste Management Facility Part I Permit (i.e., the state-equivalent of a federal Resource Conservation and Recovery Act of 1976 (RCRA) permit) covering regulatory requirements the State adopted and for which the State has been authorized by the U.S. Environmental Protection Agency (EPA). If applicable, EPA then issues the Hazardous and Solid Waste Amendments part II permit covering regulatory requirements the State has not yet adopted or been authorized by EPA.

2011 Percent of Total HW Recycled in MO



Missouri Department of Natural Resources - Hazardous Waste Program

Energy Recovery/Fuel Blending

The majority of hazardous waste recycling in Missouri is done through energy recovery. LoneStar Industries Inc. in Cape Girardeau and Green America Recycling LLC in Hannibal use a variety of liquid and solid hazardous waste-derived fuels to supplement the fuel needs for their cement kilns. Hazardous waste-derived fuel can best be described as high energy content liquid and solid hazardous wastes. By regulation, these fuels must have a heating value of at least 5,000 BTU/lb. These hazardous wastes include solvents, organic liquids, paint residues, contaminated oil, byproduct fluids and other solid wastes such as rags, gloves and filters contaminated with hazardous waste. Fuel blending facilities mix hazardous waste to achieve customers' requirements for energy content, thickness and acceptable concentrations of hazardous constituents, such as metals and chlorine content. Blended wastes typically have an average heat value ranging from 9,000 to 12,000 BTU/lb.

By using the blended hazardous waste-derived fuels as an alternative to fossil fuels, mainly coal, in cement kilns, natural resources are conserved, overall CO₂ emissions are reduced, using hazardous waste landfills or other units to dispose of waste is avoided, incinerating hazardous waste solely for destruction is reduced and the energy value of the waste materials is recognized. The management and operation of hazardous waste fuel blending facilities and those facilities using hazardous waste-derived fuels for energy recovery (i.e., cement kilns) are regulated by the department's Hazardous Waste Program's Permit Section, through a part I permit. Air emissions from facilities using hazardous waste-derived fuels are regulated mainly by the department's Air Pollution Control Program, with supplemental requirements contained in the part I permit, if appropriate.

Metals Recovery

Exide Technologies in Forest City and Doe Run's Buick Resource Recovery Facility in Boss recover lead and other metals, plastic and acid associated with lead-based batteries. Most of the hazardous waste metals recycling in Missouri can be attributed to lead-acid batteries. Used or "spent" lead-acid batteries are considered a hazardous waste under RCRA, because they exhibit the toxicity characteristic for lead and the corrosivity characteristic for the sulfuric acid electrolyte in the battery. Batteries also contain other heavy metals such as mercury, cadmium and nickel. These metals can seep out and contaminate soil, water and air if the battery is improperly incinerated or gets crushed if improperly disposed. Statistics show 96 percent of all spent lead-acid batteries are recycled and 60 to 80 percent of a typical new lead-acid battery contains recycled products. The first phase of lead-acid battery recycling, the storage and disassembly of the lead-acid batteries, is regulated by the Permit Section through a part I permit. The actual recycling of the sulfuric acid and lead-bearing components of the lead-acid battery is regulated under a resource recovery certificate.

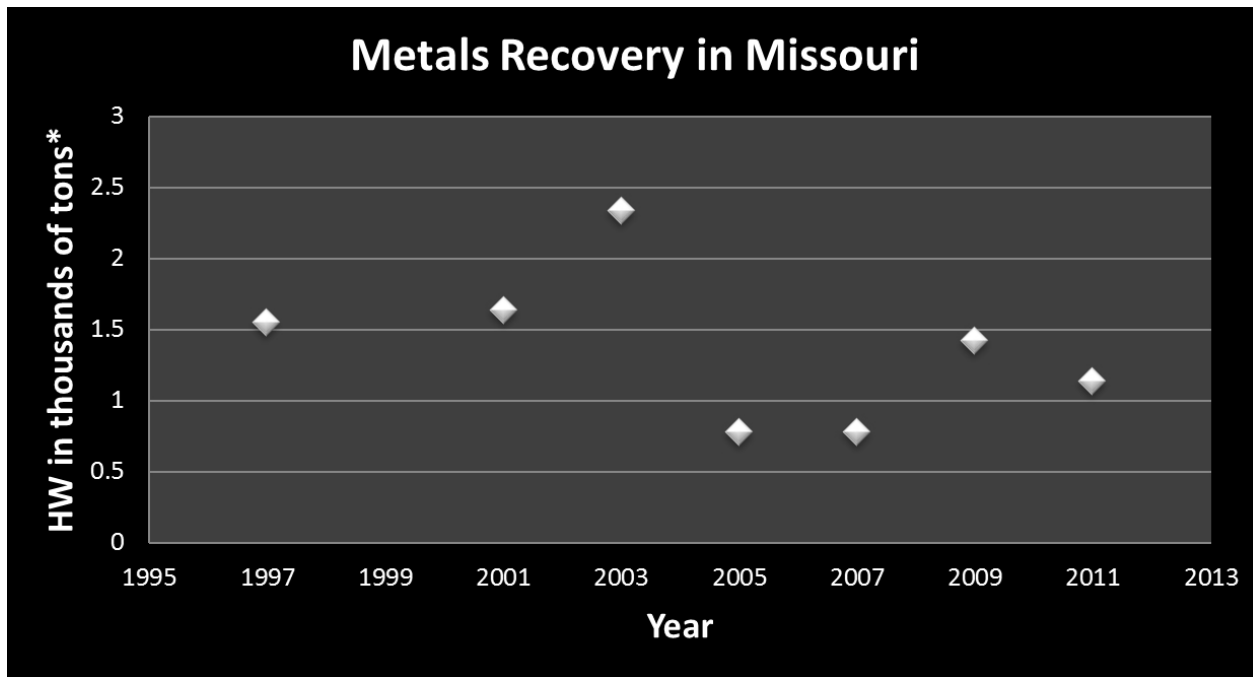
A new and innovative metals recycler, Electrometals USA in O'Fallon, recently received a resource recovery certificate to recover metals from industrial hazardous waste streams containing low concentrations of non-ferrous, precious and rare metals. Their patented EMEW® electrowinning equipment can recover nickel, copper, lead, tin and other metals

Missouri Department of Natural Resources - Hazardous Waste Program

PERMITS

from hazardous wastes as a high grade pure metal. Electrometals USA estimates more than 2-million pounds of potentially recoverable nickel is either poorly recycled or disposed of as a hazardous waste every year. At this time, Electrometals USA's main focus is recovering nickel and copper. The company accepts waste from electroplating facilities and metal working companies that handle stainless steel or high nickel alloys. The company plans to expand its recycling capabilities in the future, with department approval.

EBV Explosives Environmental Co., doing business as General Dynamics-Ordnance and Tactical Systems, Munitions Services in Carthage, has a part I permit that allows it to treat military munitions by dismantling them and thermally destroying the associated propellants and explosive agents. EBV then recovers the remaining casing and packaging materials, which includes, among other things, several different types of metals.



*In 1999 more than 28,000 tons of hazardous waste was managed for metals recovery purposes, an outlier in the rest of the data analyzed.

Solvent Recovery

Many Missouri manufacturing facilities use solvents to clean various parts and tanks after a production run. These solvents eventually become contaminated with the material they are intended to clean. After the solvent is spent and can no longer be used for its intended purpose, it becomes a listed or characteristic hazardous waste and must be managed as such. Hazardous waste solvents may be recovered on-site or sent off-site for incineration, fuel blending or energy recovery. Many companies producing hazardous waste solvents contract with other companies to collect, transport and manage hazardous waste solvents. Safety-Kleen has several part I permits to operate five commercial hazardous waste storage facilities in Missouri (St. Charles, Cape Girardeau, Columbia, Springfield and Independence). Safety-Kleen stores spent solvents, paint wastes, lacquer thinner wastes and waste oil until a sufficient quantity of materials is collected. The hazardous waste is then shipped to a Safety-Kleen recycling facility or a contract reclaimer for processing.

Many facilities handling large amounts of solvent or paint waste use an on-site distillation system to filter out the impurities making the solvent “spent” and produce a usable solvent that can be reused in their cleaning process. According to Code of State Regulations 10 CSR 25-9, facilities that recover 1,000 kg or more of hazardous waste (including solvents) in one month are required to obtain a resource recovery certificate. If a facility distills less than 1,000 kg of solvent in one month, they are exempt from resource recovery certification, but must continue to notify the department of their activities. There are currently 13 certified and 119 exempt resource recovery facilities in Missouri that distill spent solvents. On-site solvent distillation and reuse continues to be a popular form of hazardous waste recycling in Missouri. The practice not only saves the company money, but also conserves raw materials and limits the environmental impact from manufacturing the raw materials.

In future reports, we intend to break down each hazardous waste recycling industry individually to give a better picture of the hazardous waste recycling industry sectors in Missouri. These periodic articles will provide more detailed information about hazardous waste recycling as well as the recycling of additional non-hazardous materials associated with the hazardous waste recycling sector. The department is committed to working with the hazardous waste recycling industry to provide a safe and effective hazardous waste recycling process, while continuing to protect human health and the environment.

Compliance and Enforcement Section Quarterly Report July - September 2013

Regional Office Hazardous Waste Compliance Efforts conducted 100 hazardous waste generator compliance inspections:

- 11 at large quantity generators.
- 50 at small quantity generators.
- 36 at conditionally exempt small quantity generators.
- One at E-waste recycling facilities.
- Two targeted re-inspections.
- Conducted 10 compliance assistance visits at hazardous waste generators.
- Issued 33 letters of warning and three notices of violation requiring actions to correct violations cited during the 100 inspections conducted.
- Received and investigated a total of 62 citizen concerns.

Underground Storage Tank Compliance and Technology Unit

The department continues to work on the final UST requirements of the Energy Policy Act of 2005. UST compliance and technology unit (CTU) staff are reviewing current regulations needing to be updated as well as developing new regulations requiring all new UST systems installed after July 1, 2017 to have secondary containment.

The new regulations will also include Missouri specific improvements, as well as the “new” federal regulation changes, which are expected to be published this spring. Staff have already started outreach efforts through the Missouri Petroleum Storage Tank Insurance Fund (PSTIF) and the Missouri Petroleum Marketers and Convenience Store Association.

Beginning in December, staff from the Missouri Department of Agriculture, the Missouri Department of Natural Resources, and PSTIF will be conducting outreach meetings in several areas of the state to discuss equipment concerns with manufacturers and contractors, as well as the proposed regulation changes.

Tank Enforcement Efforts

With the UST CTU being fully staffed, efforts are underway to prompt responsible parties to close out-of-use tanks or take other appropriate actions. There are approximately 880 out-of-use tanks. During July through September, CTU staff sent out approximately 110 letters to the owners and operators of these facilities to encourage permanent closure of the tanks. These efforts resulted in closure notices being submitted for 109 USTs at 44 facilities and 16 USTs at eight facilities being permanently closed or removed.

In addition to work on the out-of-use tank sites, efforts continue to address facilities with financial responsibility violations. During this first quarter of State fiscal 2014, the UST CTU staff completed three administrative orders on consent for UST facilities with financial responsibility violations. Using the expedited enforcement process approved by the Hazardous Waste Management Commission in 2008, staff and the Attorney General’s Office continue to keep the number of facilities without a verified financial responsibility mechanism to less than 40.

Missouri Department of Natural Resources - Hazardous Waste Program

Tank Inspection Efforts

Staff continue their review of inspection reports and communications with tank owners and operators to assure correction of violations. Department UST inspectors also inspected all new tank installations and investigated suspected releases and out-of-use tanks. All of these efforts assure Missouri stays in compliance with the inspection mandates of the Federal Energy Policy Act.

Special Facilities Unit

Commercial Facility Inspectors - Special facilities inspectors conducted 13 inspections of commercial hazardous waste treatment, storage or disposal facilities (TSD), one of which resulted in the issuance of a notice of violation.

Polychlorinated Biphenyl Inspector - The inspector conducted 16 compliance inspections at various types of facilities throughout the state. The inspector's reports are forwarded to the U.S. EPA Region 7, which has authority for taking any necessary enforcement action regarding PCBs according to the Toxic Substances Control Act.

Hazardous Waste Transporter Inspector - The inspector conducted 11 commercial vehicle inspections, resulting in one violation cited. As part of the Commercial Vehicle Safety Association's protocol, the department sends the inspection reports to the Missouri State Highway Patrol. The transporter must certify to the patrol the violations were corrected. As of Sept. 30, 2013, there were 274 licensed hazardous waste transporters in Missouri.

Hazardous Waste Enforcement Unit

Debra Dieckow joined the Hazardous Waste Enforcement Unit (HWEU) on Sept. 16, 2013, as an environmental case manager. She comes from the St. Louis Regional Office where she was a hazardous waste and air inspector. She is busy learning the enforcement process and starting her first enforcement cases. She is also assisting with development and organization of some of the unit's checklists and procedures. Her previous knowledge of the HW regulations and inspector's perspective and experience are valued assets to our team!

Dennis Hansen returned to the HWEU as a 1,000-hour employee on Sept. 16, 2013. Dennis will be working on implementation of a pesticide education and collection program using funds from the recent settlement of a hazardous waste case.

Mike Struckhoff started in 500-hour employee status with the HWEU on Sept. 19, 2013. Mike will inspect dry cleaners and other conditionally exempt small quantity generators (CESQGs) in and assist owners and operators of these facilities with updating their dry cleaner registrations and paying fees owed to the DERT Fund.

Missouri Department of Natural Resources - Hazardous Waste Program

ENFORCEMENT

Enforcement Efforts

- Resolved and closed seven hazardous waste enforcement cases.
- Received eight new enforcement cases.
- Sent one penalty negotiation offer letter.

Regional Office and Central Office Workshop

On Sept. 11 and 12, we held our annual Central Office and Regional Office enforcement and inspection coordination meeting. The meeting was held in the Phelps County Courthouse in Rolla.

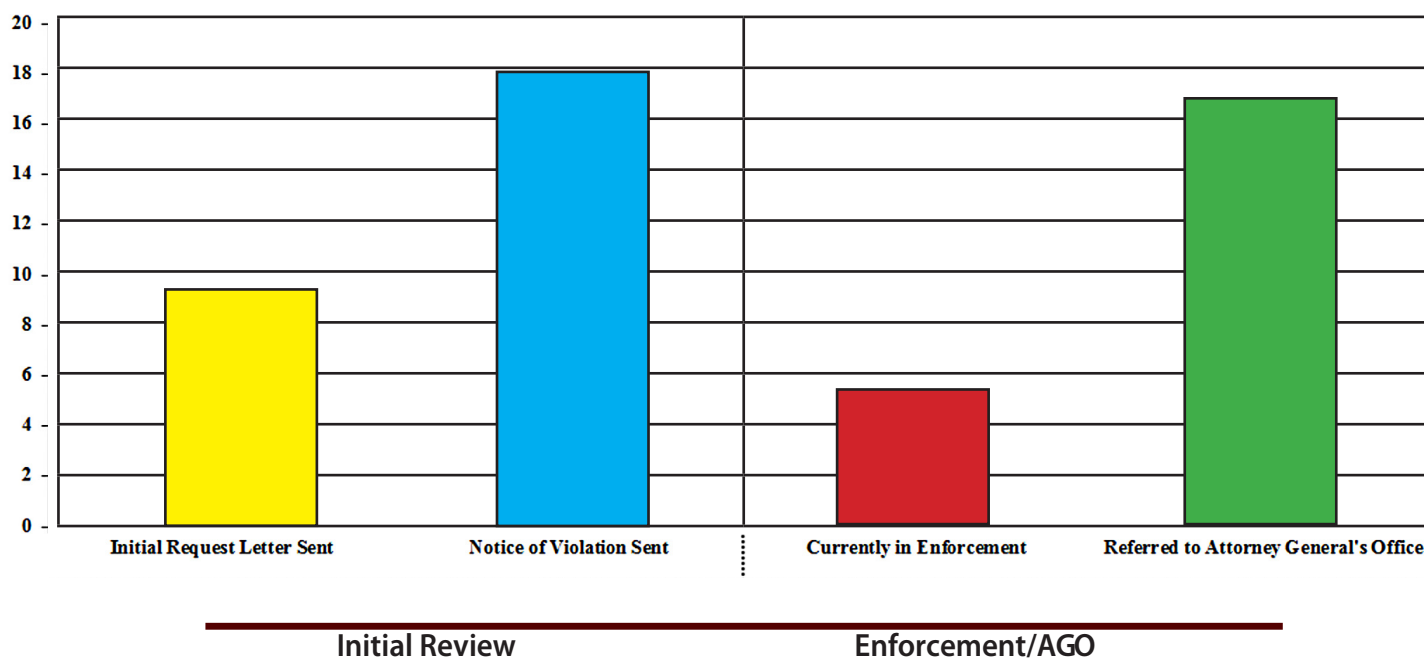
David Lamb (Hazardous Waste Program Director), Paul Jeffery (Regional Office Coordinator), Regional Office directors, managers and inspectors and staff from the Hazardous Waste Enforcement Unit and Special Facilities Unit Staff were all in attendance. Hannah Humphrey, Unit Chief for the Long Term Stewardship Unit, and Steve Vance (ITSD) also assisted with presentations. This year's meeting was conducted in a roundtable format, with various staff presenting a brief overview of a particular topic, then encouraging further group discussion. Staff discussed many items of interest, including highlights from each regional office, program updates, forthcoming regulations, specific regulatory questions and even got to participate in a field exercise using the department's GPS equipment. The hope is by discussing these topics as a group staff will continue to keep the lines of communication open and promote consistency within the department.

Missouri Department of Natural Resources - Hazardous Waste Program

ENFORCEMENT

Underground Storage Tank Facilities with Unknown Financial Responsibility Status Report

Financial Responsibility Status	Number of Facilities
Initial Request Letter Sent	9
Notice of Violation Sent	18
Currently in Enforcement	5
Referred to Attorney General's Office	17
Total Number of Facilities with Unknown Financial Responsibility	49



**This semi-monthly report is derived directly from a copy of the UST Database and provides a "snapshot" of the status for each active underground storage tank facility not covered by a proper Financial Responsibility Mechanism.*

Missouri Awarded Special Project Monies from EPA

The Tanks Section was recently awarded two competitive bids from the Environmental Protection Agency's Office of Underground Storage Tanks.

The department received the first award in the amount of \$125,000. The additional funding will be used to replace federal funding cuts and allow the department to assign additional state personnel or to hire one or more private contractors and provide state oversight of their work at tanks sites. Although, staff or contractors would work part time, with these additional funds, we estimate we can maintain or increase the number of cleanups using the Missouri Risk-Based Corrective Action Guidance and decrease turn-around times.

The cleanup of these sites will allow the public to facilitate property transactions and redevelopment. The department continues to engage and partner with communities and private individuals on redevelopment and reuse of these former petroleum sites.

Additionally, the Tanks Section was recently awarded a second competitive grant in the amount of \$175,000. This funding will allow the department to address several abandoned drinking water issues. In Missouri, tank sites for which a responsible party does not exist or cannot be found are investigated and, as necessary, cleaned-up by the department. Because we do not have funds available to address all such sites, the Tanks Section prioritizes the sites based on the real or potential threat each poses to human health and the environment. High priority sites are first to be funded. Sites of a medium or low priority might sit idle for years before funding is available to allow for appropriate investigation, remediation, and tank closure. In some cases, this necessary prioritization process results in sites that pose unacceptable human health and environmental risk sitting idle, in some cases indefinitely.

The Tanks Section has identified several abandoned former gas station sites, for which a responsible party does not exist. At these sites, petroleum contamination has impacted private drinking water wells. Actions by the department are necessary to address unacceptable human health and environmental risks posed by petroleum underground storage tanks at the sites.

This project would look to fund work by the department and the department's hired contractors to reduce risks associated with these sites. Planned actions include site investigations to identify the extent of contamination at each site, risk assessments to evaluate the risks the contamination poses to current and future receptors, plugging, closure and replacement of the impacted drinking water wells.

2013 National Tanks Conference

The National Tanks Conference and Expo was held Sept. 16-18, in Denver, Colorado. The 2013 agenda featured sessions covering an exceptionally wide range of underground storage tank topics including biofuels, remediation technologies, and vital financial issues. Many of the topics have to do with remediation technologies or procedures, such as free product recovery and evaluation and groundwater contamination issues; two issues that are complex to deal with.

In addition to the valuable educational sessions, ample opportunities for informal networking were provided, allowing staff to share knowledge and experiences with fellow attendees. The Expo featured informative booths from states, tribes and federal agencies, as well as displays from vendors showcasing the latest tanks-related products and services.

Additional information was also presented by other state regulators concerning the regulations, problematic issues, as well as the positive programs they have implemented within their states. This information is valuable to the department in learning about the different approaches tried and tested by other states, either successfully or not successfully, to improve compliance and remediation issues as well as conducting inspections and providing training for the owners and operators. Good ideas presented and previously troubleshoot by others can be invaluable to us as a State agency when implementing new programs for improved results within our own state. In addition, this conference provides an opportunity to not only learn more about our regulated community, equipment and issues, but also allows us to share our views with EPA.

Ken Koon and Heather Peters from the department participated on the conference planning team. They helped organize the conference, pre-planning workshops and individual session presentations. Peters served as a speaker in two different sessions and moderated a third session. The department was also able to take two additional staff to the conference because of reimbursements granted from the Association of State and Territorial Solid Waste Management Officials the New England Interstate Water Pollution Control Commission.

Route 66 Community Assessment and Cleanup Plan Underground Storage Tank Project

The Missouri Department of Natural Resources received \$94,000 from EPA to assess and clean up contamination released from federally regulated USTs. This money was received as part of the Route 66 Community Assessment and Cleanup Plan.

Abandoned USTs pose environmental threats and economic development barriers to reuse and redevelopment of properties. This project is helping to remove those barriers at a number of contaminated sites. This project is a positive step toward providing economic stimulus to the consultants and subcontractors doing tanks work, creating and maintaining jobs, expanding existing businesses, creating new businesses and clearing the way for communities in Missouri to redevelop and reuse these properties in a productive manner.

Project Background

The City of Springfield, after becoming aware of the Route 66 Community Assessment and Cleanup Plan, contacted the department in order to determine whether or not the subject site would be eligible to use funding associated with the project to conduct subsurface investigation, which had historically been used as a gasoline and service station.

The site is located along former Route 66, in an area of the city where revitalization efforts are underway. Redevelopment of the subject site had not been a great possibility due to environmental concerns associated with the properties former use as a gasoline service station.

The department solicited bids from select environmental consulting firms for the completion of the subsurface investigation and risk assessment. The contract for conducting requested activities was awarded. Results of the subsurface investigation indicated a presence of metals, normally associated with waste oil, at concentrations that exceed reported background levels for the area. Based upon the discovery of the metals contamination, the department has requested additional information regarding the future use of the subject property and the use of activity and use limitations, which would prohibit future residential use of the property.

Activities conducted:

- Groundwater monitoring well installation
- Soil sample collection and analysis
- Groundwater sample collection and analysis (multiple events)
- Missouri Risk-Based Corrective Action risk assessment

The activities conducted at the site to-date have enabled the department to evaluate potential risks to human health and the environment posed by the petroleum based contamination associated with the former use.

Media Issues:

- Soil and groundwater

Redevelopment

The site is currently vacant (an on-site building does exist). According to the current property owner and the City of Springfield, the site is planned for redevelopment.

Potential uses discussed have included a pawn shop or neighborhood market.



Part of the Historic Highways, Route 66 Project.
Groundwater monitoring well installations at the Fall Out Shelter in Springfield.